City of Santa Barbara
Parks and Recreation Department

Staff Report

DATE: October 26, 2011

TO: Creeks Restoration/Water Quality Improvement Program
Citizen Advisory Committee

FROM: 'f. –John Ewasiuk, Principal Civil Engineer

SUBJECT: Mason Street Bridge Replacement Project

COMMITTEE DIRECTION – FOR ACTION

That the Committee:

1. Receive a presentation and discuss the Mason Street Bridge Replacement Project (Project);
2. Provide comments to Public Works Engineering staff regarding the proposed Project design; and
3. Appoint a Committee member to serve as a liaison for the Project as it moves through the design review and approval process.

DISCUSSION

Project Need and Purpose

The Project proposes to replace a structurally deficient bridge and to increase the span of the bridge to meet the proposed Mission Creek (Creek) widening improvements for the Lower Mission Creek Flood Control Project (LMCFCP). The LMCFCP has undergone extensive public review and study as memorialized in the Army Corps of Engineers (Corps) Environmental Impact/Environmental Impact Statement (EIRIEIS), and subsequent Corps and City/County permitting by the California Coastal Commission (CCC)

The LMCFCP has been a joint effort between the Corps, the County Flood Control District, and the City, to address a significant history of flooding in the last 1.3 miles of the Creek, from just downstream of Canon Perdido Street to the Cabrillo Boulevard Bridge, just before the Creek enters the Pacific Ocean. Project objectives include:

- Provide increased flood protection
- Restore the major species of a native riparian community
- Remove and suppress invasive non-native vegetation and replace with native plants
- Remove man-made construction materials along the Creek bottom and restore to a natural condition, and
- Enhance the aquatic habitat by changing the streambed characteristics

Project Description

The City, with grant funding from the Federal Highway Administration, proposes to demolish the structurally deficient Mason Street Bridge over Mission Creek and construct a new bridge at the same location. The existing bridge deck was built in 1955 and is rendered obsolete due to the LMCFCP. The existing bridge's span is "too short" to accommodate the proposed LMCFCP channel widening. The existing bridge is about 36-feet long and 35-feet wide, and the new channel will be 55-feet wide. As such, a 55-foot span bridge is anticipated for this location. The Project involves removing the existing abutments, replacing the bridge deck with a wider and longer span, and realigning the south end of Kimberly Avenue to accommodate the new bridge and channel configuration.

In order to accomplish the project objectives, the LMCFCP includes:

1. Increase the channel capacity from an estimated 1,500 cubic feet per second (cfs) to 3,400 cfs, thereby providing protection from an approximate 20-year storm runoff event;
2. Replace bridges along Lower Mission Creek downstream of Canon Perdido Street including Haley/De La Vina, Ortega, Cota, and Mason Bridges;
3. Install a new culvert bypassing the Oxbow Channel (Oxbow) below Highway 101. The Oxbow would be left in place as a low-flow channel (see Figure 1);
4. Plant native riparian species along structurally stabilized banks, and create additional riparian habitat areas adjacent to the stream, including constructing "Habitat Expansion Zones" in areas created by remnants from the Project's property acquisitions;
5. Reconstruct Creek banks using either a vertical wall or a combination vertical wall and structurally stabilized banks;
6. Maintain the existing natural stream bottom, and revert the concrete lined stream bottom sections to natural conditions (except immediately underneath Chapala-Yanonali Bridge and through the Oxbow); and
7. Install fish habitat improvements.

The Public Works Project team has worked closely with the Creeks Division for the past year regarding the configuration and planting palette of the two LMCFCP Habitat Expansion Zones (HEZ) near the Mason Bridge. The two HEZ's are along the south east bank. One is immediately adjacent to the bridge in the location of the building at 15 West Mason Street. Currently, the 15 West Mason building encroaches in the Creek and covers about 0.15 acres. The Project proposes to demolish the building, widen the Creek, and restore the remnant area as a "Habitat Expansion Zone" as shown in the LMCFCP's EIRIEIS.

Some of the ideas discussed to date with Creeks staff for the HEZ immediately downstream and adjacent to the bridge include creating a bench protected by a line of riprap. This bench will be planted with emergent estuarine species such as Prairie Bulrush *(Bolboschoenus maritimus),* Olney's Bulrush *(Schoenoplectus americanus),* and Bog Rush *(Juncus* effusus). The bench will be mostly submerged during the summer when the lower Creek is dammed by the sand bar and consistently wet in the winter by precipitation and larger storm events. Above that zone, a sloped bank planted with riparian trees will form the upper canopy, with medium and smaller shrubs planted densely to form a diverse understory.

The second HEZ is along the north east Creek bank along Kimberly Avenue. There is a vertical wall planned at the top of the slope, so the planting palette will be comprised of riparian vegetation that will form an outer riparian canopy to allow for shading of the Creek.

The anticipated planting maintenance period will be about five years for these HEZs. After the planting maintenance period, the City will coordinate with County Flood Control on future Creek vegetation maintenance as part of the "Adaptive Maintenance Plan" associated with the City/County CCC permitting.

Design Constraints and Design Parameters

The Project's conceptual plan was established in the 2000 EIRIEIS process. The Project is currently in the preliminary design phase. The design constraints and design parameters taken into account to date include the following:

1. The LMCFCP Project – Creek banks will be widened to approximately 55 feet, and the bridge will need to span over the Creek.
2. West Bank Abutment – At issue is where to begin the abutment along the Creek's west bank in an effort to minimize impacts to the residential property located at 20 West Mason (northwest bank) and a large Sycamore tree (southwest bank). It is expected that the 20 West Mason property will be acquired and protected in place as part of this Project. The 20 West Mason property will be resold after the Project is complete.
3. Maintain two-way circulation along Mason and Kimberly as documented in the LMCFCP EIRIEIS, including accommodation for bicycles and pedestrians. The intersection needs to incorporate a bus (SU 40) turning from Mason onto Kimberly in anticipation of the proposed Children's Museum on Kimberly.
4. Provide for HEZs along the northeast and southeast Creek banks as documented in the LMCFCP EIRIEIS.
5. Mason Street improvements need to be coordinated with the "La Entrada" project's proposed Mason right of way re-alignment improvements. Kimberly improvements need to accommodate the proposed HEZ north of the bridge and relocation of 54-inch diameter Storm Drain, and minimize the right of way take at 16 West Mason. A laundry building at 16 West Mason will need to be demolished to accommodate the realignment of Kimberly.
6. Design is required to meet appropriate American Association of State Highway and Transportation Officials (AASHTO} and Caltrans standards, in addition to standard City engineering and transportation design standards and Uniform Building Code requirements.

There are several design solutions to address the above issues. Public Works will work with the Project stakeholders and Historic Landmarks Commission on the preferred design layout.

Project Construction

The proposed Project involves closure of Mason Street from State Street to Chapala Street during construction, demolition of the existing bridge, and reconstruction of a new bridge.

The construction process consists of multiple phases:

1. Demolition of existing building structures which are encroaching on the Creek and relocation of utilities.
2. Construct water diversions to channelize and protect the water from the demolition of the bridge.
3. Bridge demolition.
4. Pile driving to install the deep bridge foundation supports.

5. Cast in place abutments walls on top of piles to transfer the bridge loads to the pile supports.
6. Form, reinforce, and pour bridge deck.
7. Restore habitat along the new Creek banks.

Budget and Timeline

The Project is funded primarily from the Federal Highway Administration Highway Bridge Program. We are currently in the Preliminary Design Phase. We anticipate moving into Final Design in early 2012. Construction is anticipated to follow the construction of the Chapala/Yanonali Bridge, which is currently scheduled for the spring of 2013. The Mason Street Bridge construction is anticipated to begin in the spring of 2014.

Attachment 1 - Project Plans

JG/JE/sk

cc: Pat Kelly, Assistant Public Works Director/City Engineer
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